CLAIMS

What is claimed is:

1. A process for preparing macrostructures comprised of a crystalline molecular sieve composition, comprising the steps of:

(a) forming a composite material composed of a porous organic ion exchanger having a three-dimensional pore structure and a continuous matrix of a mesoporous inorganic material within the three-dimensional pore structure of the porous organic ion exchanger; and

(b) removing the porous organic ion exchanger from the composite material to yield the macrostructures

(c) treating said continuous three-dimensional matrix of mesoporous inorganic material, before or after removal of said porous organic ion exchanger from the composite material, under hydrothermal conditions to convert at least a portion of said mesoporous inorganic material to a crystalline molecular sieve composition.

2. The process recited in Claim 1, wherein the step of treating said continuous three-dimensional matrix of mesoporous inorganic material under hydrothermal conditions is conducted in the presence of a structuring agent to convert at least a portion of said mesoporous inorganic material to a crystalline molecular sieve composition.

3. The process recited in Claim 1, wherein the step of treating under hydrothermal conditions occurs before the step of removing the porous organic ion exchanger from the composite material.

4. The process recited in Claim 1, wherein the step of treating under hydrothermal conditions occurs after the step of removing the porous ion organic exchanger from the composite material.

5. The process recited in Claim 1, wherein said macrostructures have a size and shape of the three-dimensional pore structure of said porous organic ion exchanger.

6. The process recited in Claim 5, wherein said porous organic ion exchanger is a porous organic anionic ion exchanger.

7. The process recited in Claim 6, wherein said porous anionic ion-exchanger has an ion-exchange capacity greater than about 1 meg./gm of dry weight of porous anionic ion-exchanger.

8. The process recited in Claim 7, wherein said porous anionic ion-exchanger is a strongly basic anion-exchange resin containing quartenary ammonium groups.

9. The process recited in Claim 8, wherein said porous organic ion exchanger is a polymer-based organic ion exchanger.

10. The process recited in Claim 1, wherein said porous organic ion exchanger is a macroreticular ionic exchanger.

11. The process recited in Claim 1, wherein said macrostructures have at least one dimension greater than about 0.1 mm.

12. The process recited in Claim 1, wherein said macrostructures are spherical or cylindrical.

13. The process recited in Claim 1, wherein said molecular sieve is an aluminosilicate zeolite or a metallosilicate substantially free of aluminum.

14. The process recited in Claim 1, wherein said molecular sieve is a large pore size molecular sieve or an intermediate pore size molecular sieve.

15. The process recited in Claim 1, wherein said molecular sieve is of a structure type selected from the group consisting of LTL, FAU, MOR, *BEA, MFI, MEL, MTW, MTT, MFS, FER, and TON.

16. The process recited in Claim 1, wherein said molecular sieve is selected from the group consisting of zeolite A, zeolite L, zeolite X, zeolite Y, mordenite, zeolite beta, ZSM-5, ZSM-11, ZSM-22, ZSM-35, silicalite 1 and silicalite 2.

17. The process recited in Claim 16, wherein said crystalline molecular sieve is a ZSM-5 or silicalite 1.

18. The process recited in Claim 1, wherein said mesoporous inorganic material is selected from the group consisting of silica, aluminum silicate, and alumina.

19. The process recited in Claim 18, wherein the mesoporous inorganic material is amorphous silica or amorphous silica-alumina having a specific surface area exceeding 200 m^2/g.

20. The process recited in Claim 1, wherein said porous organic ion exchanger is removed by either an oxidation process or by dissolution.

21. Macrostructures prepared by a process comprising the steps of

(a) forming a composite material composed of a porous organic ion exchanger having a three-dimensional pore structure and a continuous matrix of a mesoporous inorganic material within the three-dimensional pore structure of the porous organic ion exchanger; and

(b) removing the porous organic ion exchanger from the composite material to yield ~~the~~ macrostructures

(c) treating said continuous three-dimensional matrix of mesoporous inorganic material, before or after removal of said porous organic ion exchanger from the composite material, under hydrothermal conditions to convert at least a portion of said mesoporous inorganic material to a crystalline molecular sieve composition.

22. The macrostructures of Claim 21, wherein in the process the step of treating said continuous three-dimensional matrix of mesoporous inorganic material under hydrothermal conditions is conducted in the presence of a structuring agent to convert at least a portion of said porous inorganic material to a crystalline molecular sieve composition. .

23. The macrostructures of Claim 21, wherein in the process the step of treating under hydrothermal conditions occurs before the step of removing the porous organic ion exchanger from the composite material.

24. The macrostructures of Claim 21, wherein in the process the step of treating under hydrothermal conditions occurs after the step of removing the porous organic ion exchanger from the composite material.

25. A process for converting hydrocarbons comprising contacting a hydrocarbon feedstream under hydrocarbon conversion conditions with a catalyst having macrostructures comprised of a crystalline molecular sieve composition prepared by a process comprising:

(a) forming a composite material composed of a porous organic ion exchanger having a three-dimensional pore structure and a continuous matrix of a mesoporous inorganic material within the three-dimensional pore structure of the porous organic ion exchanger; and

(b) removing the porous organic ion exchanger from the composite material to yield the macrostructures

(c) treating said continuous three-dimensional matrix of mesoporous inorganic material, before or after removal of said porous organic ion exchanger from the composite material, under hydrothermal conditions to convert at least a portion of said mesoporous inorganic material to a crystalline molecular sieve composition.

26. The process recited in Claim 25, wherein the step of treating said continuous three-dimensional matrix of mesoporous inorganic material under hydrothermal conditions is conducted in the presence of a

structuring agent to convert at least a portion of said mesoporous inorganic material to a crystalline molecular sieve composition.

27. The process recited in Claim 25, wherein the step of treating under hydrothermal conditions occurs before the step of removing the porous organic ion exchanger from the composite material.

28. The process recited in Claim 25, wherein the step of treating under hydrothermal conditions occurs after the step of removing the porous ion organic exchanger from the composite material.

29. The process recited in Claim 25, wherein said macrostructures have a size and shape of the three-dimensional pore structure of said porous organic ion exchanger.

30. The process recited in Claim 29, wherein said porous organic ion exchanger is a porous organic anionic ion exchanger.

31. The process recited in Claims 25, wherein the hydrocarbon conversion process is selected from the group consisting of cracking of hydrocarbons, isomerization of alkyl aromatics, transalkylation of aromatics, disproportionation of alkylaromatics, alkylation of aromatics, reforming of naphtha to aromatics, conversion of paraffins and/or olefins to aromatics, and conversion of oxygenates to hydrocarbon products.

32. The process recited in Claim 25, wherein said hydrocarbon conversion is carried out at conditions comprising a temperature of from 100°C to

760°C, a pressure of 0.1 atmosphere to 100 atmospheres, a weight hourly space velocity of form $0.08hr^{-1}$ to $200hr^{-1}$.